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193188 MLRS MISSILE NUMBER BN-197 BN-157 BN-167 BN-206
BN-195 BN-191 ROUN..(U) ARMY ELECTRONICS RESEARCH AND
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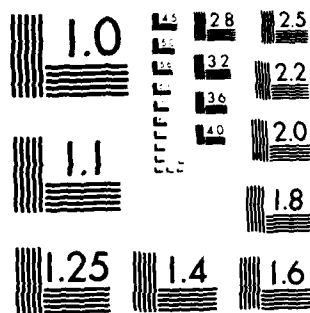


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DR 1291
4 Mar 83

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METEOROLOGICAL DATA REPORT

19318B MLRS
Missile Number BN-197, BN-157, BN-167,
BN-206, BN-195, BN-191
Round Number V-425/OT-31 THRU V-430/OT-36
4 March 1983.

by

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AVN Number 349-9568

ATMOSPHERIC SCIENCES LABORATORY
WHITE SANDS MISSILE RANGE, NEW MEXICO

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20. ABSTRACT (Continue on reverse side if necessary and identify by block number) Meteorological data gathered for the launching of the 193100 MLRS, Missile Number BN-197, BN-157, BN-167, BN-206, BN-195, BN-191, Round Number M-425/OT-31 Thru M-430/OT-36 are presented in tabular form.		

SECURITY CLASSIFICATION OF THIS PAGE(When Data Entered)



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INTRODUCTION

19318B MLRS, Missile Numbers BN-197, BN-157, BN-167, BN-206, BN-195 and BN-191, Round Numbers V-425/OT-31 Thru V-430/OT-36, were launched from LC-33, White Sands Missile Range (WSMR), New Mexico, at 1300:00, 1300:05, 1300:09, 1300:14, 1300:18 and 1300:23 MST, 4 Mar 83. The scheduled launch times were 1300 MST with a 4.5 second separation.

DISCUSSION

Meteorological data were recorded and reduced by the White Sands Meteorological Team, Atmospheric Sciences Laboratory (ASL), White Sands Missile Range, New Mexico. The data were obtained by the following methods:

1. Observations

a. Surface

(1) Standard surface observations to include pressure, temperature ($^{\circ}\text{C}$), relative humidity, dew point ($^{\circ}\text{C}$), density (gm/m^3), wind direction and speed, and cloud cover were made at the LC-33 Met Site at T-0 minutes.

(2) Anemometer data were provided from existing pole-mounted and tower-mounted anemometers at LC-33. Monitor of wind speed and direction from one anemometer was also provided in the launch control room.

b. Upper Air

(1) Low level wind data were obtained from pilot-balloon observations at:

SITE AND ALTITUDE

LC-33 1550 Meters

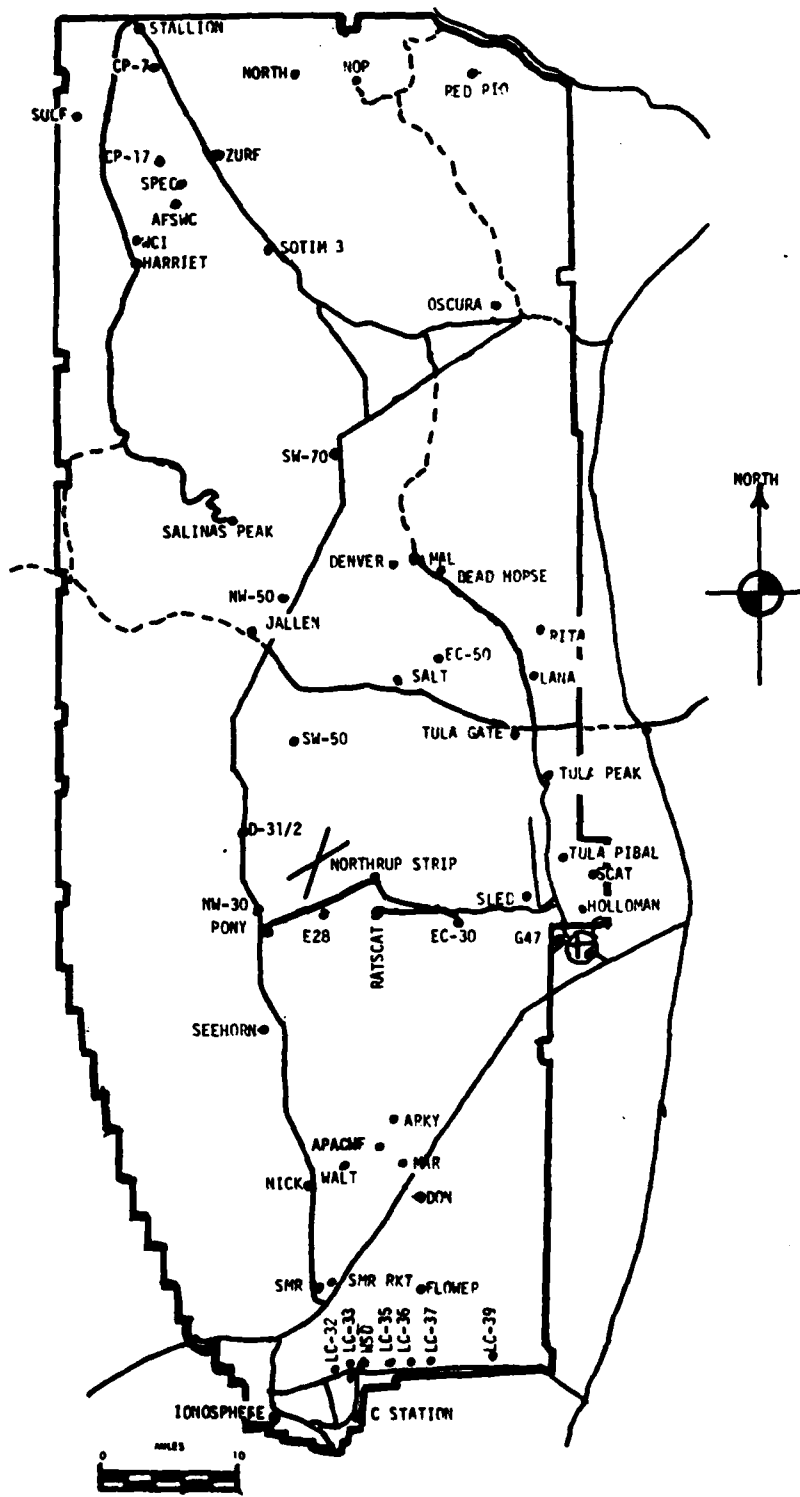
(2) Air structure data (rawinsonde) were collected at the following Met Sites.

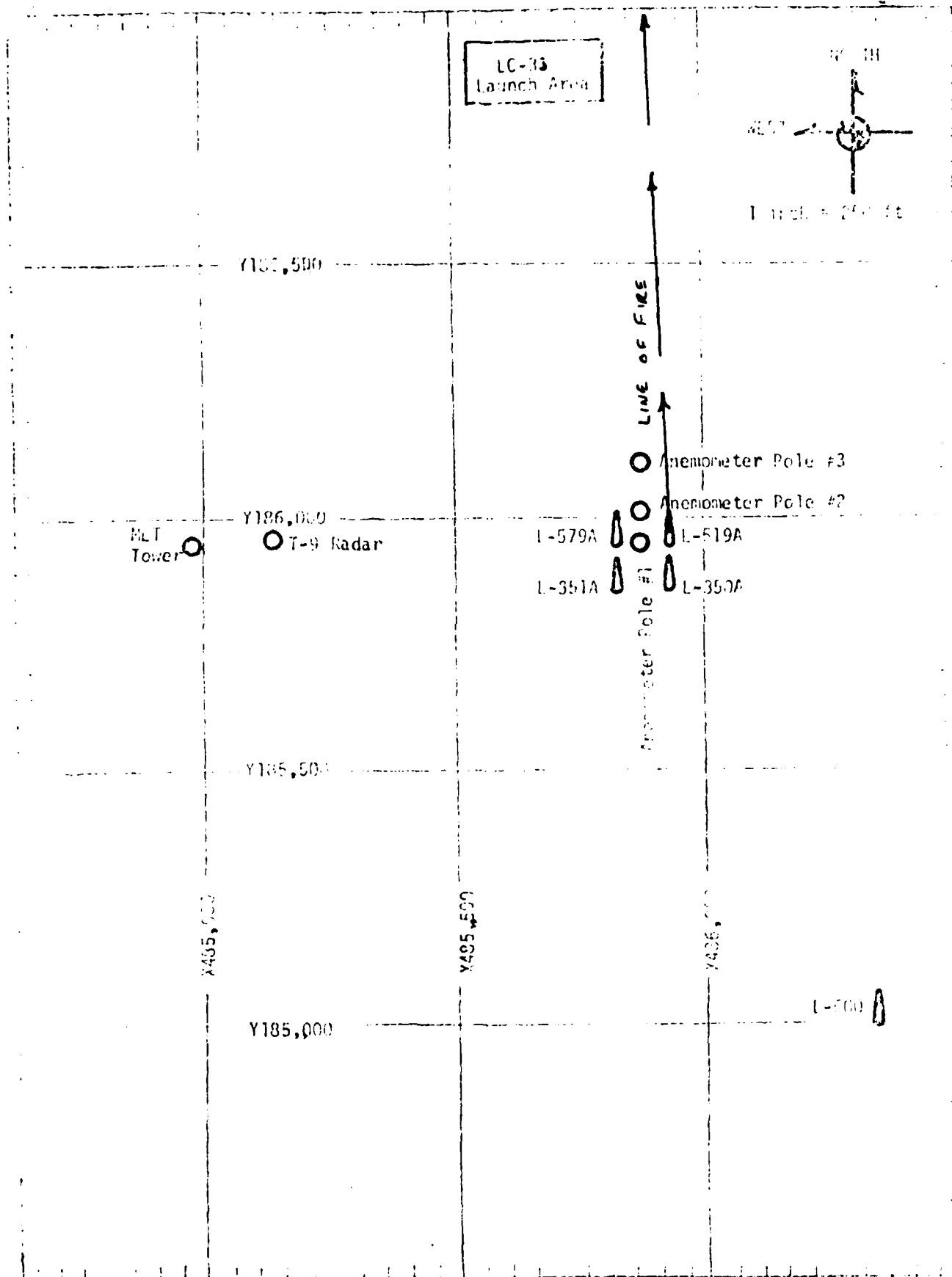
SITE AND TIME

WSD 1100 MST

WSD 1231 MST

WSMR METEOROLOGICAL SITES





PROJECT SURFACE OBSERVATION

TABLE 1

DATE 04 MAR 83

STATION LC-33 E & A

X = 484,982.64 Y = 185,957.73 H = 3995.00

TIME M	PRESSURE mb's	TEMPERATURE OF °C	DEW POINT OF °C	RELATIVE HUMIDITY %	DENSITY gm/m ³	WIND			VISIBILITY
						DIRECTION degs In	SPEED kts	CHARACTER kts	
1300	864.5	10.4	3.9	64	1061	285	16		50

OBSERVATIONS TO VISIBILITY	CLOUDS						REMARKS			
	1st LAYER		2nd LAYER		3rd LAYER					
	AMT	TYPE HGT	AMT	TYPE HGT	AMT	TYPE HGT				
	8	Sc	2,500	1	As	12,000	0	Cs	20,000	RMU SE-S

PSYCHROMETRIC COMPUTATION

TIME: MST	1300		
DRY BULB TEMP.	10.4		
WET BULB TEMP.	7.0		
WET BULB DEPR.	3.4		
DEW POINT	3.9		
RELATIVE HUMID.	64		

TABLE 2 LC-33 FIXED POLE ANEMOMETER MEASURED WINDS

POLE #1 X485,874.29 Y185,958.90 H4918.74 32.7 ft. AGL			POLE #2 X485,874.29 Y136.012.00 H4033.57 53.0 ft. AGL			POLE #3 X485,877.29 Y185,116.06 H4053.92 83.6 ft. AGL		
T-TIME SEC	DIR DEG	SPEED KNOTS	T-TIME SEC	DIR DEG	SPEED KNOTS	T-TIME SEC	DIR DEG	SPEED KNOTS
T -30	243	25	T-30	233	18	T -30	258	22
T -20	260	22	T-20	255	16	T -20	252	18
T -10	252	18	T-10	251	15	T -10	261	22
T 0.0	252	15	T 0.0	250	19	T 0.0	247	20
T +10	265	19	T+10	248	13	T +10	243	27

TABLE 3 LC-33 METEOROLOGICAL TOWER ANEMOMETER MEASURED WINDS (202 FT TOWER)

LEVEL #1, 10 FEET X484,982.64, Y185,057.73, H3983.00 (base)			LEVEL #2, 62 FEET X484,982.64, Y185,057.73, H3983.00 (base)		
T-TIME SEC	DIR DEG	SPEED KNOTS	T-TIME SEC	DIR DEG	SPEED KNOTS
T -30	278	12	T -30	245	23
T -20	282	14	T -20	267	23
T -10	283	16	T -10	250	22
T 0.0	284	16	T 0.0	265	22
T +10	287	14	T +10	272	16

LEVEL #3, 102 FEET X484,982.64, Y185,057.73, H3983.00 (base)			LEVEL #4, 202 FEET X484,982.64, Y185,057.73, H3983.00 (base)		
T-TIME SEC	DIR DEG	SPEED KNOTS	T-TIME SEC	DIR DEG	SPEED KNOTS
T -30	260	26	T -30	269	29
T -20	276	25	T -20	266	27
T -10	282	20	T -10	267	26
T 0.0	280	21	T 0.0	272	29
T +10	275	23	T +10	271	28

TABLE 4

T-TIME PILOT-BALLOON MEASURED WIND DATA

DATE 4 Mar 83

SITE: LC-33
 TIME: 1300 MST
 WSTM COORDINATES:
 X= 484,837.34
 Y= 184,124.44
 H= 3,975.57

SITE:
 TIME:
 WSTM COORDINATES:
 X=
 Y=
 H=

LAYER MIDPOINT METERS AGL	DIRECTION DEGREES	SPEED KNOTS
SURFACE	285	16
150	284	16
210	274	17
270	264	18
330	255	19
390	254	21
500	258	24
650	261	27
800	262	28
950	263	29
1150	267	32
1350	271	33
1550	274	31
1750	MISG	
2000	MISG	

LAYER MIDPOINT METERS AGL	DIRECTION DEGREES	SPEED KNOTS
SURFACE		
150		
210		
270		
330		
390		
500		
650		
800		
950		
1150		
1350		
1550		
1750		
2000		

TABLE 5

AIMING COMPUTER MET MESSAGES
04 March 1983

WSD 1100 MST

METCM1324064

041800122865

00462012 28690865

01506015 28360855

02489019 28010829

03482023 27660789

04486026 27190742

05495032 26820696

06496039 26660653

07495034 26310623

08497035 25910574

09492039 25490537

WSD 1231 MST

METCM1324064

041950122865

00409012 28660865

01432030 28410854

02450020 28090829

03466021 27720489

04468023 27250742

05493022 26810697

06499034 26460653

07498030 26050612

08500039 25710573

09516031 25350537

STATION ALTITUDE 3489.00 FEET MSL
 4 MAR. 63 1100 HRS. MST
 ASCENSION I.O. 117

SIGNIFICANT LEVEL DATA
 0630020117
 WHITE SANDS

GEODETIC COORDINATES
 32.40043 LAT DEG
 106.37033 LONG DEG

TABLE 6

PRESSURE MILLIBARS, Hg/L FLL	GEODETIC ALTITUDE	TEMPERATURE AIR DEW POINT DEGREES CENTIGRADE	REL. HUM. PERCENT
660.9	3089.0	13.0	4.4
850.0	4464.5	7.9	-0.8
782.6	6681.3	2.2	-1.1
770.1	7107.8	.7	-3.0
740.6	7993.3	-1.7	-2.8
700.8	9348.6	-5.2	-5.5
700.0	9598.1	-5.8	-9.7
680.6	10171.3	-5.8	-12.1
670.2	10375.4	-5.5	-14.5
660.8	11082.8	-6.1	-17.5
607.4	13237.2	-10.6	-22.4
540.0	15802.9	-17.1	-26.7
500.0	18038.3	-23.0	-27.6
			56.0
			54.0
			79.0
			76.0
			92.0
			98.0
			74.0
			61.0
			49.0
			40.0
			37.0
			43.0
			66.0

STATION ALTITUDE 3089.00 FEET MSL
4 MAR. 63 1100 HRC. MST
ASCENDING NO. 117

UPPER AIR DATA
0630020117
WHITE SANDS

GEOMETRIC COORDINATES
32.400000 LAT DEG
106.370333 LONG DEG

TABLE 7

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	AIR TEMPERATURE DEGREES CENTIGRADE	WFL. HUM. PERCENT	DENSITY GM/CM ³ METER	SPEED OF SOUND KNOTS	WIND DATA DIRECTION SPEED KNOTS	INDEX OF REFRACTION
3989.0	864.9	13.0	56.0	1049.1	660.0	200.0	1.000273
4000.0	864.0	12.0	56.0	1049.1	660.1	200.1	1.000272
4500.0	840.9	7.8	54.4	1049.8	653.8	202.9	1.000262
5000.0	833.2	6.5	60.0	1035.1	652.4	205.0	1.000260
5500.0	817.8	5.2	65.7	1020.6	650.4	206.0	1.000256
6000.0	802.7	4.0	71.3	1006.4	648.4	207.9	1.000253
6500.0	787.9	2.7	77.0	992.4	647.4	208.9	1.000249
7000.0	773.2	1.1	76.8	979.8	645.4	209.5	1.000244
7500.0	758.7	-0.4	83.1	966.5	644.2	210.1	1.000241
8000.0	744.4	-1.7	92.0	953.0	642.6	213.2	1.000238
8500.0	730.2	-3.0	94.2	939.4	641.1	216.6	1.000233
9000.0	716.3	-4.3	96.5	926.1	639.5	218.4	1.000229
9500.0	702.7	-5.6	83.4	913.1	637.4	219.2	1.000221
10000.0	689.2	-6.9	64.9	896.7	637.4	218.7	1.000213
10500.0	675.9	-8.6	47.4	879.2	637.6	218.5	1.000206
11000.0	662.9	-10.0	41.1	863.8	637.0	218.5	1.000201
11500.0	650.1	-11.3	39.4	850.1	634.4	218.8	1.000197
12000.0	637.5	-12.5	38.7	836.9	634.6	219.2	1.000193
12500.0	625.1	-13.8	38.0	824.0	633.3	219.1	1.000190
13000.0	613.0	-15.1	37.3	811.3	632.0	218.9	1.000187
13500.0	600.9	-16.3	37.6	798.9	630.6	218.8	1.000183
14000.0	589.0	-17.6	38.8	786.9	629.1	218.6	1.000180
14500.0	577.3	-18.9	40.0	775.1	627.6	218.4	1.000177
15000.0	565.9	-20.3	41.1	763.5	626.0	218.2	1.000174
15500.0	554.7	-21.6	42.3	752.1	624.5	218.1	1.000172
16000.0	543.6	-22.9	45.0	740.7	622.9	218.1	1.000169
16500.0	532.6	-24.2	50.2	729.5	621.3	218.1	1.000167
17000.0	521.7	-25.5	55.3	718.4	619.7	218.1	1.000164
17500.0	511.2	-26.8	60.5	707.5	618.1	218.1	1.000162
18000.0	500.8	-28.1	65.6	696.8	616.4	218.1	1.000159

STATION ALTITUDE 3400.00 FEET (51
 4 MARK. 43
 ASCENSION NO. 117

LANDATORY LEAPLES
 0030020117
 WHITE SANDS

STATION ALTITUDE 3400.00 FEET (51
 4 MARK. 43
 ASCENSION NO. 117

STATION ALTITUDE 3400.00 FEET (51
 4 MARK. 43
 ASCENSION NO. 117

TABLE 8

PRESSURE GROUP (FT/IN)	TEMPERATURE AIR DEWPOINT DEGREES CENTIGRADE	HPL. HUM. PERCENT	WIND DATA	
			WIND DIRECTION (DEGREES (TN))	WIND SPEED (KNOTS)
850.0	4461.	7.9	262.7	14.1
800.0	6091.	8.7	266.1	21.1
750.0	7797.	-1.2	271.7	25.8
700.0	9509.	-9.7	279.1	31.0
650.0	11499.	-7.0	278.8	30.5
600.0	13526.	-11.4	278.7	30.2
550.0	15693.	-16.0		
500.0	18014.	-23.0		

STATION ALTITUDE 3489.00 FEET MSL
 4 MAR. 63 1231 1022.55Z
 ASCENDING NO. 116

SIGNIFICANT LEVEL DATA
 0030020114
 WHITE SANDS

TABLE 9

PRESSURE	GEOMETRIC ALTITUDE MILLIBARS, MSL FEET	TEMPERATURE AIR DEWPOINT DEGREES CENTIGRADE	REL. HUM. PERCENT
860.8	3789.0	12.8	2.6
850.0	4462.1	9.2	-1.2
790.3	6289.9	3.8	-2.4
736.9	8273.1	-1.9	-2.3
700.0	9608.5	-5.4	-5.7
672.7	10631.3	-7.7	-8.0
650.8	11321.0	-8.2	-8.5
637.1	12017.1	-11.1	-12.5
619.1	12739.2	-12.3	-18.4
590.2	15271.2	-17.5	-23.5
550.9	15630.9	-18.3	-23.2
526.4	16750.7	-20.7	-29.9
500.0	17994.3	-23.6	-39.9

STATION ALTITUDE 3489.00 FEET MSL
 4 MAR. 43 1231 HRS MST
 ASCENSION 10. 118

WINDY AIR DATA
 063002011A
 WHITE SANDS

GEODETIC COORDINATES
 12.40043 LAT DEG
 106.57033 LONG DEG

TABLE 10

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREE CENTIGRADE	REL. HUM. PERCENT	DENSITY GM/CM ³ METER	SPEED OF SOUND KNOTS	WIND DATA DIRECTION DEGREES (TN)	WIND SPEED KNOTS	INDEX OF REFRACTION
3989.0	864.8	12.8	50.0	1050.2	654.4	210.0	12.0	1.000248
4000.0	864.5	12.7	50.0	1050.1	654.7	210.3	12.0	1.000248
4500.0	840.8	9.1	48.3	1045.1	655.3	224.0	12.5	1.000259
5000.0	833.2	7.6	52.7	1031.3	653.6	236.2	13.6	1.000256
5500.0	817.9	6.1	57.1	1017.7	651.4	246.1	15.2	1.000253
6000.0	802.9	4.7	61.5	1004.3	650.1	253.9	17.2	1.000249
6500.0	788.0	3.2	67.5	990.4	648.4	260.1	19.4	1.000247
7000.0	773.3	1.8	75.8	977.3	646.8	261.9	20.7	1.000244
7500.0	758.8	.3	84.1	964.0	645.1	262.9	21.8	1.000241
8000.0	744.6	-1.1	92.5	950.9	643.4	263.8	22.9	1.000239
8500.0	730.5	-2.5	97.2	937.8	641.7	267.1	23.7	1.000235
9000.0	716.6	-3.8	97.5	924.6	640.1	270.6	24.7	1.000230
9500.0	702.9	-5.1	97.9	911.6	638.5	273.8	25.7	1.000225
10000.0	689.4	-6.3	98.0	898.1	637.1	277.3	26.6	1.000220
10500.0	676.1	-7.4	98.0	884.7	635.7	280.6	27.6	1.000216
11000.0	663.1	-8.0	98.0	869.4	634.0	282.5	28.0	1.000211
11500.0	650.2	-8.9	95.7	855.8	633.8	280.5	31.7	1.000207
12000.0	637.5	-11.0	89.2	846.1	631.2	274.0	33.9	1.000201
12500.0	625.0	-11.9	69.6	832.6	630.0	278.2	34.7	1.000195
13000.0	612.6	-12.8	59.9	819.2	628.8	278.5	35.8	1.000190
13500.0	600.5	-13.0	59.4	806.1	627.6	279.8	37.1	1.000187
14000.0	588.5	-14.9	59.4	793.3	626.3	280.4	39.3	1.000183
14500.0	576.8	-15.9	59.3	780.6	625.0	281.4	39.4	1.000180
15000.0	565.3	-16.9	59.1	768.2	623.8	283.3	35.8	1.000177
15500.0	554.0	-18.0	62.7	755.9	622.5	286.3	31.4	1.000174
16000.0	542.8	-19.1	57.9	743.9	621.1	288.4	29.4	1.000170
16500.0	531.8	-20.2	48.0	732.0	619.8	286.9	33.0	1.000167
17000.0	521.0	-21.3	38.6	720.3	618.5			1.000163
17500.0	510.3	-22.6	29.7	709.3	616.8			1.000160

STATION ALTITUDE 3489.00 FEET MSL
 4 MAR. 43 1231 HRS MST
 ASCENDING NO. 118

MANDATORY LEVELS
 00.0002011M
 WHITE SANDS

TABLE 11

PRESSURE EQUIVALENT, MILLIBARS	TEMPERATURE AIR DEGREES CENTIGRADE	DEWPOINT PERCENT	WIND DATA	
			DIRECTION DEGREES (TN)	SPEED KNOTS
850.0	4459.	9.2	-1.2	94.0
800.0	6004.	4.4	-2.2	62.0
750.0	7804.	-0.6	-2.1	84.0
700.0	9509.	-5.4	-5.7	94.0
650.0	11477.	-9.0	-9.6	94.0
600.0	13509.	-13.9	-20.0	60.0
550.0	15660.	-18.4	-23.4	64.0
500.0	17970.	-23.8	-39.9	21.0

11

END

DATE
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